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INSTRUCTIONS FOR PRESERVING, PACKING, AND SHIPPING INSECT SPECIMENS

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MISSOURI
FOREST INSECT
LABORATORY

SUBJECT-

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INSTRUCTIONS FOR PRESERVING, PACKING, AND SHIPPING INSECT SPECIMENS



Adult insects intended for the collection or submitted for determination should not be shipped alive.

Large samples are often necessary and always helpful for the proper study or identification of a species. Samples of 20 or more specimens should be submitted when such numbers are readily available; if the insect is abundant but unknown to the collector larger samples should be taken.

Representatives of the several stages of each species are always desirable. When immature stages of reared adults are unavailable, cast skins are of considerable value.

Shipment of Live Insects

Pupae and larvae sent for rearing should be forwarded in tight containers, tin salve boxes or mailing cases depending upon the size and number of specimens. Pupae preferably should be packed loosely in somewhat moist (but not wet) moss. Larvae should be packed with sufficient food material to last them until their arrival at destination. Most coleopterous larvae and some lepidopterous larvae, especially cutworms, should be isolated since they are more or less cannibalistic. To prevent excess accumulation of frass and sweating do not overload container with live larvae or plant material. Do not put vent holes in containers; insects require a minimum of air and will not suffocate in tight containers.

Preservation and Shipment of Dead Unmounted Insects

1. Preserved in liquid.

70-75 per cent grain alcohol is the best general liquid preservative and should always be used unless some other preservative is especially requested.

Specimens of the following groups should be preserved in alcohol:

Anoplura (sucking lice)	Homoptera (leafhoppers, aphids, etc.)
Coleoptera (beetles)	see also item 2
Collombola (spring-tails)	Hymenoptera (ants, gall wasps & parasites only)
Corrodentia (psocids or booklice)	see also item 2
Dermaptera (earwigs)	Isoptera (termites or white ants)
Diptera (only minute forms such as eye gnats and fungus gnats)	Mallophaga (bird lice or biting lice)
see also item 2	Plecoptera (stone flies)
Embiidina (embiids)	Siphonaptera (fleas)
Ephemeroptera (mayflies)	*Thysanoptera (thrips)
Hemiptera (true bugs) may be submitted in alcohol or dry)	Thysanura (silverfish)
see also item 2	Zoraptera

* The most satisfactory fluid for the preservation of thrips consists of 8 parts 95 per cent alcohol, 5 parts distilled water, 1 part glycerine and 1 part glacial acetic acid.

Immature stages of all orders; also other Arthropods such as centipedes, millipeds, mites, spiders, ticks, etc.

The following special instructions are to be observed:

- a. Larvae should be killed in boiling water and allowed to remain in the water for from one to five minutes, according to size, before being transferred to alcohol.
- b. Segregate the different kinds of insects being sent whenever it is convenient to do so.
- c. Do not pack a vial full of specimens.
- d. Either have the vial completely full of fluid, or insert a tight stopper of cotton at the surface of the liquid so that the specimens cannot splash about. Be sure the cork fits and is firmly set.

2. Preserved dry.

Material preserved dry should be placed in paper pill boxes between layers of collucotton and packed tightly enough so that specimens will not move about, but not pressed down enough to flatten or distort the specimens. Cotton should not be used, as appendages catch in the fibers and are apt to be broken off.

Adult specimens of the following groups should be preserved dry:

Diptera (flies and mosquitoes) except certain minute forms such as eye gnats and fungus gnats	Lepidoptera (moths and butterflies)
Hemiptera (true bugs) (may be sub- mitted dry or in alcohol) see also item 1	Mecoptera (scorpion flies)
Homoptera (scale insects on host material, and Aleyrodidae) see also item 1	Neuroptera (lace-wing flies, dobson flies, ant lions, etc.)
Hymenoptera (bees, wasps, & sawflies) see also item 1	Odonata (dragon flies and damsel flies)
	Orthoptera (grasshoppers, cock- roaches, etc.)
	Trichoptera (caddice flies)

The following special instructions are to be observed:

- a. Specimens should be placed in pill boxes as soon as possible after killing. If for any reason the insects become dry and brittle they should be partially relaxed in a moist chamber before packing.
- b. Medium and small sized moths and butterflies should be packed one specimen to a layer of collucotton. Moths and butterflies too large for pill boxes, as well as Odonata, may be sent in envelopes or folded "triangles" just large enough to hold the individual specimen. The envelopes or triangles should then be packed between layers of collucotton so they cannot shift about.

- c. Do not put naphthalene or paradichlorobenzene in the pill boxes where it will come in contact with the specimens.
- d. Bulky insects, or pieces of host plants bearing insects such as Coccidae or Aleyrodidae should be partially or fully dried out before being placed in a container, or packed in a container which will permit desiccation to continue after closure. We have repeatedly received fleshy parts of plants, presumably infested with scale insects, which had moulded badly or completely decayed by the time they were received, merely because such precautions were not observed.

Shipment of Mounted Insects

Only boxes with the bottom securely lined with cork or some other appropriate material should be used. Pins should be set firmly in the cork. If the specimen is heavy, or if the pin carries some other heavy object such as a small vial, additional pins should be firmly set on each side both to prevent the specimen from spinning on its pin and to prevent the pin from coming out of the cork. Heavy specimens that come loose in transit can break all the specimens in a box.

Specimens mounted on microscope slides should be shipped only after the slides are thoroughly dry. Slides are best shipped in standard slide containers with a layer of cotton or cellucotton on top to hold them in place. If slide containers are not available, each slide should be wrapped in soft paper so as to avoid crushing the specimen or dislodging the cover glass.

Packing for Shipping

Vials should be wrapped separately in strong paper and cotton or cellucotton and packed in a mailing case or small box so they cannot shift about. Pill boxes should be snugly packed in similar containers. Small containers or boxes of specimens should be placed in a larger box or carton with at least two inches all around of excelsior, straw, or crumpled paper packed tightly enough to hold the container in place yet loosely enough to be resilient.

Data Accompanying Specimens

All specimens submitted should be accompanied by as complete information as possible. The following are essential: Exact locality, date of collection, collector, and food plant or other host association if known. The "locality" should be some point that can be identified on ordinary maps. In instances of isolated points of collection the approximate distance and direction from points shown on maps should be mentioned.

Labels carrying data should be so attached or enclosed as to leave no doubt as to the associated specimens. When specimens being sent are known to represent various stages of a single species this should be indicated.